

**STATEMENT BY MINISTER JOHN HALLIGAN T.D., MINISTER OF STATE FOR
TRAINING, SKILLS AND INNOVATION**

AT

1ST INTERNATIONAL SPACE FORUM AT MINISTERIAL LEVEL IN TRENTO

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Introduction:

Good morning Ministers, Ambassadors, Heads of Delegation, Presidents of the IAF, IAA and ASI and all Participants and Observers here today.

I am very pleased to represent Ireland and to participate in this very important inaugural 1st International Space Forum which will mark a significant step in the development of global cooperation to capture and exploit space data and activities to meet societal challenges for the benefit of all humanity.

I would like to congratulate The International Astronautical Federation, The International Academy of Astronautics and The Italian Space Agency for this excellent and timely initiative and for providing a unique opportunity to develop first steps towards mutually beneficial cooperation on a global scale.

Climate Change:

We are living in unique times and face many difficult and potentially destructive challenges. Addressing these challenges in a positive manner requires analysis and understanding of the problems. Science and observation are central and essential to finding the solutions that we need.

The Paris Agreement on Climate Change was a major step in the right direction in addressing the global challenge of climate change. Its ratification and entry into

force in record time is indicative of the genuine intent of Governments to address this challenge. Science and earth observations are critical to ensuring achievement of the goals and objectives of the Paris Agreement.

These goals are informed by the work of the Intergovernmental Panel on Climate Change whose 5th report provided an authoritative assessment of a vast amount of peer reviewed scientific material on climate change. The key messages from that science are compelling; warming of the climate system is unequivocal, the human influence is clear, and the impacts are evident across all continents and oceans. Scientific research and Earth Observation will be key to validating the implementation of the Paris Agreement.

We know that there is only a limited amount of carbon we can release into the atmosphere if we are to hold global average temperature increase to well below 2°C let alone pursue efforts to limit this to 1.5°C. The Paris Agreement requires us to balance greenhouse gas emissions and removals. This is an enormous challenge and it is essential that we develop and provide the data and tools to enable this to happen.

Land Management and Weather

Land management both to reduce degradation of soils, and to increase uptake of carbon from the atmosphere and store it in soils and biomass, is a key part of the solution. Advanced observations systems both space-based and ground-based are needed to enable this to happen at local level.

At a global level this can only be done through space-based observations, however, these observations need to be linked to local users and practitioners whose actions will be responsible for managing the land.

We must also address the growing impacts of climate change including more extreme weather events, sea-level rise and a changing world as humans, plants and animals respond to new climate conditions. Strengthening adaptive capacity and resilience is essential.

Maritime Environment:

The oceans play a crucial role in planetary/ecosystem function. It influences climate, the carbon cycle and supports an impressive diversity life forms.

They are of major strategic importance to the economic and social development of the world. The application of science and technology to our seas and oceans presents new and exciting opportunities for economic growth and innovation in the maritime sector. New and emerging scientific knowledge and technologies are providing unprecedented access to marine resources.

Recalling the **Galway Declaration** made by 500 leading marine scientists, policy makers and industries in Ireland in 2004 – it states that “seas and oceans have historically played a formative role in the development of many European coastal States. From the utilisation of fish as a food source, to the development of international trade, commerce and maritime transport, European society has thrived and prospered from its partnership with the sea”.

Much of this prosperity can be traced back to the application of science and engineering. Critical developments, underpinned by science and technology, included shipbuilding and the development of navigational aids. We are still building innovative ships and navigational tools but increasingly in the form of spacecraft and constellations of earth observation and geo-positioning satellites which will transform our global interaction with the sea and oceans in a hugely positive manner.

Big Data:

Environmental protection measures are specifically linked to strengthening scientific knowledge of climate change, through research and systematic observation. This gives rise to the need for integrated observations of our atmosphere oceans and lands coupled to Human and Earth Systems models.

These generate big data, but also essential data, that needs to be transformed into useful information and knowledge services.

We need breakthroughs in forecasting and on early warning systems if we are to ensure, for example, that food production is not threatened. That is a central objective of global climate policy so as to protect human health and welfare. Again this can only be achieved through a combination of big data, analysis systems and models that provide useful information for citizens.

It is a “big data” challenge to capture, store and analyse these data and make sense of the underlying information so that it can be made available to decision-makers in Governments and business in useful formats.

However, big data needs to serve the needs of the public and not just be the preserve of scientists, government and corporations. We can see how this can happen through the example of weather forecasting. The improvements in forecasting have assisted in key areas of transport, food production and managing our day to day lives.

This now needs to be broadened out into other areas of people’s lives. Linking big data to small science is part of this. Citizen science needs to be increasingly empowered by new technologies whose potential we are continuing

to learn about. Combining these with global data is a key challenge for data management.

Earth Protection:

Research, development and innovation are central to sustainable development. Living well within ecological limits will require fundamental transitions in the systems of production and consumption that are the root cause of environmental and climate pressures. By increasing understanding of the environment and the environmental consequences of human activities, and changing attitudes towards environmental issues, environmental research can have a profound and long-lasting effect on our society and economy.

As well as protecting our climate system, which is fundamental to achievement of wider sustainable development goals, we must also act on other challenges which are stressing our fragile planet. These include biodiversity loss, water quality, air pollution, ocean acidification and desertification.

Earth observations can assist in all of these areas. As mentioned at the outset these are linked issues. The key link is our collective will to address these challenges and doing so in a manner that improves the lives of ordinary people.

The European Union Copernicus Earth Observation programme is unique in that nothing of this scale currently exists globally and Europe is now poised to lead in this area - the opportunity for all countries to play their role in Earth Observation and Earth Protection into the future couldn't be greater given the scope to develop new downstream services to meet the ever increasing national and international demand in this sector.

There are unprecedented levels of growth potential in the space applications sector, driven by multiple factors including the availability of space based data and a paradigm shift in the sector with activity being led by the private sector as opposed to national governments. The main impact is that space is becoming more accessible and the commercial opportunities are increasing rapidly.

The use of space applications is one of the most critical and beneficial outcomes of investment in space technology and this is where the broad and most important economic and societal returns are. A Global platform to fully exploit space applications would be very much welcomed and this is an area where the EU could play a significant role, in association with the European Space Agency and the respective Member States.

Sustainable Development:

Ireland's *Framework for Sustainable Development* provides an integrated cross-Government framework for transitioning to a resource-efficient, low-carbon and climate-resilient future and for driving a major reorientation of public and private investment, including in innovation, research and development, with a focus on the green economy.

Key priorities Ireland's environmental research programme include:

- developing integrated approaches to addressing the challenges that arise from climate change, air and water quality and other environmental issues, and identifying growth opportunities arising from them
- deepening our understanding of the role of the natural environment in sustaining well-being and the economy
- reducing waste generation and treating waste as a resource

- identifying and informing cost-effective transition pathways to a carbon-neutral and climate-resilient Ireland, and understanding how individual and collective behaviour can influence this transition.

The outcomes of this research will help support effective and efficient policy development and decision-making, for example, significant infrastructure investment may be required for climate change adaptation and river basin management.

Education:

It is globally accepted that talented people are a critical factor in scientific innovation. In its *2015 Innovation Strategy*, the OECD stated 'human capital is the essence of innovation'. Angel Gurría, the OECD Secretary-General, stated:

'Skills have become the global currency of the 21st century. Without proper investment in skills, people languish on the margins of society, technological progress does not translate into economic growth, and countries can no longer compete in an increasingly knowledge-based global society.'

Future growth depends on innovation and future innovation depends on people. The full continuum of talent development among our students must be supported by Governments. This requires action at all levels, from encouraging greater engagement with science, technology, engineering and mathematics at primary level to ensuring the necessary supports for researchers at postdoctoral and Principal Investigator levels.

We must also ensure that the quantity and quality of trained people is sufficient and we must support the full spectrum of research, from frontier research at and beyond the frontiers of current understanding, to the creation and development of research-informed innovative products, processes and services. Support for excellent research across all disciplines (including arts, humanities and the social sciences as

well as science, technology, engineering and maths) is essential, as is the provision of adequate research infrastructure to ensure that our researchers have access to the best possible equipment and facilities.

The development of a country's talent entails lifelong investment and commitment on the part of both the individual and the State. From pre-primary through to further and higher education and throughout an individual's career, skills and knowledge need to be continuously enhanced if individuals, employers and countries are to realise their potential.

Our success has always, and will always, depend on our people. It is people who undertake the research, create successful companies and make public policy decisions.

The participation of scientists and researchers in global research partnerships is vital if we are to truly understand earth ecosystem function.

For these reason Ireland strongly supports and is already acting on many of the Declarations in the Space manifesto.

Conclusion:

Ireland believes that one of the foremost challenges preventing the optimal uptake and exploitation of space data relates to the overall level of awareness of the existence and potential benefits of space data in Universities, the public sector and the commercial sector – both end users and value adding companies.

A second key challenge to be addressed relates to the use of space data in support of Government policies many of which, particularly in the environmental, agriculture and maritime sectors, would benefit from the coherent use of space data to achieve the relevant policy goals.

The future of the world as we know it is the hands of this generation and the next; we need to have the tools and information to enable us to act in a responsible manner. The challenge is massive but we have the capacity to address it by working together and using science and innovative technologies to shape a better future.

Ireland hopes that, through partnership and cooperation, among both nations and space agencies, together we can alter perceptions and generate expectations that will realise the full potential of what the space sector can help us achieve in the coming years.

Finally Ministers I look forward to the remainder of today's programme and to the approval of the Forum's Space Manifesto later this evening.

Thank you